

Abstract

[0080] High molecular weight random polyhydroxypolyamides (PHPAs) are produced by creating prepolymers which are further polymerized. Random prepolymers are formed from a stoichiometrically molar balanced (1:1) starting material. The starting material is a 1:1 stoichiometrically balanced esterified aldaric acid: alkylene or alkylene derived diammonium salt. Alternatively, the starting material is an esterified stoichiometrically balanced diacid: diamine salt and a *N*⁺-ammoniumalkyl (or alkyl derived)-D-aldaramic acid terminal carboxylate zwitterionic salt mixture. The starting materials are polymerized in a basic alcohol using a second amine. The polymerized material, or the random prepolymers, are isolated and then further polymerized in a solvent, typically a mixed solvent of an alcohol and non-alcohol, to obtain the high molecular weight PHPAs.